General

Guideline Title

Clinical policy: critical issues in the evaluation of adult patients with suspected transient ischemic attack in the emergency department.

Bibliographic Source(s)

Lo BM, Carpenter CR, Hatten BW, Wright BJ, Brown MD, American College of Emergency Physicians. Clinical policy: critical issues in the evaluation of adult patients with suspected transient ischemic attack in the emergency department. Ann Emerg Med. 2016 Sep;68(3):354-70.e29. [72 references] PubMed

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

Definitions for the strength of evidence (Class I-III) and strength of recommendations (A-C) are provided at the end of the "Major Recommendations" field.

In adult patients with suspected transient ischemic attack (TIA), are there clinical decision rules that can identify patients at very low short-term risk for stroke who can be safely discharged from the emergency department (ED)?
Level A recommendations. None specified.

Level B recommendations. In adult patients with suspected TIA, do not rely on current existing risk stratification instruments (e.g., age, blood pressure, clinical features, duration of TIA and presence of diabetes [ABCD2] score) to identify TIA patients who can be safely discharged from the ED.

Level C recommendations. None specified.

In adult patients with suspected TIA, what imaging can be safely delayed from the initial ED workup?
Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. (1) The safety of delaying neuroimaging from the initial ED workup is unknown. If noncontrast brain MRI is not readily available, it is reasonable for physicians to obtain a noncontrast head computed tomography (CT) as part of the initial TIA workup to identify TIA mimics (e.g., intracranial hemorrhage, mass lesion). However, noncontrast head CT should not be used to identify patients at high short-term risk for stroke. (2) When feasible, physicians should obtain magnetic resonance imaging (MRI) with diffusion-weighted imaging (DWI) to identify patients at high short-term risk for stroke. (3) When feasible, physicians should obtain cervical vascular imaging (e.g., carotid ultrasonography, computed tomography angiography [CTA], or magnetic resonance angiography [MRA]) to identify patients at high short-term risk for stroke.

In adult patients with suspected TIA, is carotid ultrasonography as accurate as neck CTA or MRA in identifying severe carotid stenosis?
Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. In adult patients with suspected TIA, carotid ultrasonography may be used to exclude severe carotid stenosis because it has accuracy similar to that of MRA or CTA.

In adult patients with suspected TIA, can a rapid ED-based diagnostic protocol safely identify patients at short-term risk for stroke?
Level A recommendations. None specified.

Level B recommendations. In adult patients with suspected TIA without high-risk conditions,* a rapid ED-based diagnostic protocol may be used to evaluate patients at short-term risk for stroke.

Level C recommendations. None specified.

*High-risk conditions include abnormal initial head CT result (if obtained), suspected embolic source (presence of atrial fibrillation, cardiomyopathy, or valvulopathy), known carotid stenosis, previous large stroke, and crescendo TIA.

Definitions

Strength of Evidence

*Literature Classification Schema**

Design/Class	Therapy†	Diagnosis‡	Prognosis§
1	Randomized controlled trial or meta-analysis of randomized trials	Prospective cohort using a criterion standard or meta-analysis of prospective studies	Population prospective cohort or meta-analysis of prospective studies
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
3	Case series	Case series	Case series

*Some designs (e.g., surveys) will not fit this schema and should be assessed individually.

†Objective is to measure therapeutic efficacy comparing interventions.

‡Objective is to determine the sensitivity and specificity of diagnostic tests.

§Objective is to predict outcome, including mortality and morbidity.

*Approach to Downgrading Strength of Evidence**

Downgrading	Design/Class		
	1	2	3
None	I	II	III
1 level	II	III	X

2 levels Fatally flawed	**Downgrading**	III X **1**	X **Design/Class** X **2**	X X **3**

*See the "Description of Methods Used to Analyze the Evidence" field for more information.

Strength of Recommendations

Strength of recommendations regarding each critical question were made by subcommittee members using results from strength of evidence grading, expert opinion, and consensus among subcommittee members according to the following guidelines:

Level A recommendations. Generally accepted principles for patient care that reï¬,ect a high degree of clinical certainty (e.g., based on evidence from 1 or more Class of Evidence I or multiple Class of Evidence II studies).

Level B recommendations. Recommendations for patient care that may identify a particular strategy or range of strategies that reï¬,ect moderate clinical certainty (e.g., based on evidence from 1 or more Class of Evidence II studies or strong consensus of Class of Evidence III studies).

Level C recommendations. Recommendations for patient care that are based on evidence from Class of Evidence III studies or, in the absence of any adequate published literature, based on expert consensus. In instances where consensus recommendations are made, "consensus" is placed in parentheses at the end of the recommendation.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, and publication bias, among others, might lead to such a downgrading of recommendations.

Clinical Algorithm(s)

An algorithm titled "Example of a Rapid ED-based Diagnostic Protocol" is provided in the original guideline document.

Scope

Disease/Condition(s)

Transient ischemic attack (TIA)

Guideline Category

Evaluation

Clinical Specialty

Emergency Medicine

Internal Medicine

Neurology

Intended Users

Physicians

Guideline Objective(s)

- To address key issues for adults presenting to the emergency department with suspected transient ischemic attack.
- To derive evidence-based recommendations to answer the following clinical questions:
  - In adult patients with suspected transient ischemic attack, are there clinical decision rules that can identify patients at very low short-term risk for stroke who can be safely discharged from the emergency department?
  - In adult patients with suspected transient ischemic attack, what imaging can be safely delayed from the initial emergency department workup?
  - In adult patients with suspected transient ischemic attack, is carotid ultrasonography as accurate as neck computed tomography angiography or magnetic resonance angiography in identifying severe carotid stenosis?
  - In adult patients with suspected transient ischemic attack, can a rapid emergency department-based diagnostic protocol safely identify patients at short-term risk for stroke?

Target Population

Adults presenting to the emergency department with suspected transient ischemic attack who have had resolution of symptoms

Interventions and Practices Considered

1. Reliance on risk stratification instruments (e.g., age, blood pressure, clinical features, duration of transient ischemic attack [TIA], presence of diabetes [ABCD2] score) (considered but not recommended)
2. Brain neuroimaging
   - Noncontrast magnetic resonance imaging (MRI)
   - Noncontrast computed tomography (CT)
   - MRI with diffusion-weighted imaging (DWI)
3. Cervical vascular imaging (e.g., carotid ultrasonography, CT angiography [CTA], magnetic resonance angiography [MRA])
4. Emergency department (ED)-based diagnostic protocol

Major Outcomes Considered

- Safe discharge from emergency department (ED)
- Future strokes
- Safety of delaying emergent imaging
- Sensitivity and specificity of diagnostic imaging
- Timeliness of evaluation

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

This clinical policy was created after careful review and critical analysis of the medical literature and was based on a systematic review of the literature. Searches of MEDLINE, MEDLINE InProcess, Cochrane, and SCOPUS were performed. All searches were limited to English-language sources, adults, and human studies. Specific key words/phrases, years used in the searches, dates of searches, and study selection are identified under each critical question in the original guideline document. In addition, relevant articles from the bibliographies of included studies and more recent articles identified by committee members and reviewers were included.

Number of Source Documents

Study Selection

Critical Question 1

Three hundred seventy-eight articles were identified in the search. Seventy-two articles were selected from the search results for further review, with 34 studies included for this critical question.

Critical Question 2

Four hundred forty-one articles were identified in the search. Eighty-five articles were selected from the search results for further review, with 13 studies included for this critical question.

Critical Question 3

Three hundred ninety-eight articles were identified in the search. Thirty-four articles were selected from the search results for further review, with 8 studies included for this critical question.

Critical Question 4

Three hundred forty-nine articles were identified in the search. Sixty articles were selected from the search results for further review, with 8 studies included for this critical question.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Strength of Evidence

Literature Classification Schema*

Design/Class	Therapy†	Diagnosis‡	Prognosis§
1	Randomized controlled trial or meta-analysis of randomized trials	Prospective cohort using a criterion standard or meta-analysis of prospective studies	Population prospective cohort or meta-analysis of prospective studies
2	Nonrandomized trial	Retrospective observational	Retrospective cohort Case control
3	Case series	Case series	Case series

*Some designs (e.g., surveys) will not fit this schema and should be assessed individually.

†Objective is to measure therapeutic efficacy comparing interventions.

‡Objective is to determine the sensitivity and specificity of diagnostic tests.

§Objective is to predict outcome, including mortality and morbidity.

Approach to Downgrading Strength of Evidence*

Downgrading	Design/Class		
	1	2	3
None	I	II	III
1 level	II	III	X
2 levels	III	X	X
Fatally flawed	X	X	X

*See the "Description of Methods Used to Analyze the Evidence" field for more information.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Assessment of Classes of Evidence

All articles used in the formulation of this clinical policy were graded by at least 2 methodologists and assigned a Class of Evidence. Each article was assigned a design class with design 1 representing the strongest study design and subsequent design classes (i.e., design 2, design 3) representing respectively weaker study designs for therapeutic, diagnostic, or prognostic clinical reports, or meta-analyses (see the "Rating Scheme for the Strength of the Evidence" field). Articles were then graded on dimensions related to the study's methodological features, such as randomization processes, blinding, allocation concealment, methods of data collection, outcome measures and their assessment, selection and misclassification biases, sample size, and generalizability. Using a predetermined process related to the study's design, methodological quality, and applicability to the critical question, articles received a final Class of Evidence grade (i.e., Class I, Class II, Class III, or Class X) (see the "Rating Scheme for the Strength of the Evidence" field). Articles identified with fatal flaws or that were ultimately not applicable to the critical question received a Class of Evidence grade "X" and were not used in formulating recommendations for this policy. Grading was done with respect to the specific critical questions; thus, the level of evidence for any one study may vary according to the question for which it is being considered. As such, it was possible for a single article to receive different Classes of Evidence as different critical questions were answered from the same study. Question-specific Classes of Evidence grading may be found in the Evidentiary Table in the original guideline document.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

This policy is a product of the American College of Emergency Physicians (ACEP) clinical policy

development process, including expert review, and is based on the existing literature; when literature was not available, consensus of emergency physicians was used.

When possible, clinically oriented statistics (e.g., likelihood ratios [LRs], number needed to treat) are presented to help the reader better understand how the results may be applied to the individual patient. For a definition of these statistical concepts, see Appendix C in the original guideline document.

Rating Scheme for the Strength of the Recommendations

Strength of Recommendations

Strength of recommendations regarding each critical question were made by subcommittee members using results from strength of evidence grading, expert opinion, and consensus among subcommittee members according to the following guidelines:

Level A recommendations. Generally accepted principles for patient care that reflect a high degree of clinical certainty (e.g., based on evidence from 1 or more Class of Evidence I or multiple Class of Evidence II studies).

Level B recommendations. Recommendations for patient care that may identify a particular strategy or range of strategies that reflect moderate clinical certainty (e.g., based on evidence from 1 or more Class of Evidence II studies or strong consensus of Class of Evidence III studies).

Level C recommendations. Recommendations for patient care that are based on evidence from Class of Evidence III studies or, in the absence of any adequate published literature, based on expert consensus. In instances where consensus recommendations are made, "consensus" is placed in parentheses at the end of the recommendation.

There are certain circumstances in which the recommendations stemming from a body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, and publication bias, among others, might lead to such a downgrading of recommendations.

Cost Analysis

The fourth question looks at whether a rapid emergency department (ED)-based diagnostic protocol can be used to safely identify patients at short-term risk for stroke. One of the studies reviewed provided data that using an accelerated diagnostic protocol for transient ischemic attack (TIA) workup has a lower 90-day cost compared with hospital admission without increasing adverse events.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

Expert review comments were received from emergency physicians, neurologists, members of the American Heart Association (AHA)/American Stroke Association (ASA), and American College of Emergency Physicians' (ACEP's) Medical Legal Committee. Comments were received during a 60-day open comment period, with notices of the comment period sent in an e-mail to ACEP members, published in *EM Today*, and posted on the ACEP Web site. The responses were used to further refine and enhance this policy; however, the responses do not imply endorsement of this clinical policy.

This clinical policy was approved by the ACEP Board on June 22, 2016.

This clinical policy was endorsed by the Emergency Nurses Association on July 25, 2016.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Recommendations for question 1 were based on 9 Class II and 25 Class III studies. Recommendations for question 2 were based on 4 Class II studies and 9 Class III studies. Recommendations for question 3 were based on 8 Class III studies. Recommendations for question 4 were based on 5 Class II studies and 3 Class III studies.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

See the "Potential Benefits" sections in Appendix D in the original guideline document for information on potential benefits of the specific interventions.

Potential Harms

See the "Potential Harms" sections in Appendix D in the original guideline document for information on potential harms of the specific interventions.

Qualifying Statements

Qualifying Statements

- Policy statements and clinical policies are the official policies of the American College of Emergency Physicians (ACEP) and, as such, are not subject to the same peer review process as articles appearing in the journal. Policy statements and clinical policies of ACEP do not necessarily reflect the policies and beliefs of *Annals of Emergency Medicine* and its editors.
- This policy is not intended to be a complete manual on the evaluation and management of adults with suspected transient ischemic attack (TIA) but rather a focused examination of critical issues that have particular relevance to the current practice of emergency medicine.
- It is the goal of the Clinical Policies Committee to provide an evidence-based recommendation when the medical literature provides enough quality information to answer a critical question. When the medical literature does not contain adequate empirical data to answer a critical question, the members of the Clinical Policies Committee believe that it is equally important to alert emergency physicians to this fact.
- This clinical policy is not intended to represent a legal standard of care for emergency physicians. Recommendations offered in this policy are not intended to represent the only diagnostic or management options available to the emergency physician. ACEP recognizes the importance of the individual physician's judgment and patient preferences. This guideline defines for the physician

those strategies for which medical literature exists to provide support for answers to the critical questions addressed in this policy.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Mobile Device Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Safety

Timeliness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2016 Sep

Guideline Developer(s)

American College of Emergency Physicians - Medical Specialty Society

Source(s) of Funding

The American College of Emergency Physicians (ACEP) was the funding source for this clinical policy.

Guideline Committee

American College of Emergency Physicians (ACEP) Clinical Policies Subcommittee (Writing Committee) on Suspected Transient Ischemic Attack

ACEP Clinical Policies Committee (Oversight Committee)

Composition of Group That Authored the Guideline

Members of the Subcommittee on Suspected Transient Ischemic Attack: Bruce M. Lo, MD, MBA, RDMS (*Subcommittee Chair*); Christopher R. Carpenter, MD, MSc; Benjamin W. Hatten, MD, MPH; Brian J. Wright, MD, MPH; Michael D. Brown, MD, MSc (*Committee Chair*)

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Financial Disclosures/Conflicts of Interest

Relevant industry relationships: There were no relevant industry relationships disclosed by the subcommittee members for this topic.

Relevant industry relationships are those relationships with companies associated with products or services that significantly impact the specific aspect of disease addressed in the critical question.

Guideline Endorser(s)

Emergency Nurses Association - Professional Association

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Available from the American College of Emergency Physicians (ACEP) Web site .

A summary of this guideline optimized for mobile viewing is available under the CQ tab at the ACEP Web site .

Availability of Companion Documents

The following are available:

American College of Emergency Physicians clinical policy development. Irving (TX): American College of Emergency Physicians (ACEP); 3 p. Available from the American College of Emergency Physicians (ACEP) Web site .

ACEP clinical policy development process. Flow chart. Irving (TX): American College of Emergency Physicians (ACEP); 1 p. Available from the ACEP Web site .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on November 17, 2016. The information was verified by the guideline developer on December 19, 2016.

Copyright Statement

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Readers with questions regarding guideline content are directed to contact the guideline developer.